In 1973 120 hours were required for the pollen tubes to extend through the Texas styles (table 3), compared to 96 hours in 1972. Because Texas bloomed later than Nonpareil in 1973, its flowers were subjected to lower temperatures following pollination. The weather was particularly cool during the first 24 hours, and between 48 and 120 hours after pollination of the Texas flowers. There were only 9 hours of temperatures of 60°F (15.6°C) and above, between pollination on February 23 and the time the Texas styles were penetrated by the pollen tubes (February 28, 1973), compared to 22 hours in 1972 (table 1).

The reason for the contrasting responses of Nonpareil and Texas to cooler temperatures is not clear. However, the increased rate of pollen tube growth in Nonpareil in 1973, relative to that in 1972, and the decreased rate in Texas, indicate that some factor other than temperature may have a significant role in determining the rate of pollen tube penetration through the stylar tissue.

The 1973 results with both Nonpareil and Texas flowers indicate that pollen germination and tube growth may be satisfactory, even though somewhat inhibited, at temperatures between 50°F and 60°F (10.0°C and 15.6°C). This is not surprising, as the important almond cultivars usually start blooming during warm weather in February, and the bloom period is often interrupted and prolonged by intervals of cool, inclement weather. The salient point is that, even under relatively favorable weather conditions, four or five days are required for pollen tubes to grow through almond styles. Certainly, the earlier an almond flower is cross-pollinated after opening, the more likely fertilization and fruit-set will result. It is essential that the grower maintain adequate combinations of cross-compatible cultivars and that he provide an abundant supply of honeybees to facilitate early pollination.

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Picnic Day, Davis, 1975

AGRICULTURAL RESEARCH PHOTO FEATURES

Picnic day visitors at Davis were given an opportunity to observe many phases of agricultural research being conducted in laboratories, field plots, and livestock feed yards. Included were the activities pictured here, and on the cover of this issue.

Right photo shows "fingerprints" of genetic traits produced by a research process called electrophoresis-- contributing to the search for pest-resistant varieties of tomato plants. U.C. Davis graduate student Jon Fobes studies the distinctive patterns produced by plant enzymes that have been subjected to high voltages of electricity. Among the objectives of his research project is the checking of hundreds of varieties of wild tomatoes to find those with a natural resistance to nematodes, which are tiny organisms that attack plants roots.

Photo below shows U.C. Davis researcher Mary Ferguson adding sulphuric acid to samples of lamb fat as part of a process in testing for the presence of hexachlorobenzene. This is part of an ongoing project to determine safe levels of use for this fungicide. Photos by Tracy Borland.